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ABSTRACT

College students were instigated by a confederate and then interacted with that same person on a reaction time completion task. The confederate informed half of the treatment subjects of the response strategy he intended to adopt. The other half received an irrelevant message. Subjects in both message conditions then competed against the confederate who employed one of the following five response consequence strategies: (a) consistently set a constant, maximum shock across all trials; (b) consistently set a constant, minimal shock across all trials; (c) set contingent shocks identical to the subject's response on the preceding trial; (d) set contingent shocks to settings below the subject's response; or (e) set contingent shocks two settings below the subject's response. A no-treatment group obtained no message and no consequences, but chose from five available intensities of shocks to deliver to the confederate on those trials on which the confederate's reaction time was slower. The intensities of the subject's shocks were recorded. The strategy which delivered noncontingent-low shocks resulted in the lowest level of retaliation when an irrelevant message was delivered. In the presence of a relevant message, the contingent-match group rendered the least aggressive behavior. These findings help to clarify previous research and conceptualizations in this area. (Author)

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The Reduction of Aggressive Behavior:
Behavioral Strategies and Contingency Messages

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The Reduction of Aggressive Behavior:

Behavioral Strategies and Contingency Messages

Most of us would acknowledge the ease with which another person can be angered by our behavior. Typically, it is much more difficult to terminate anger which has already been ignited. Recently, psychological researchers have investigated the value of various response strategies in the reduction of aggressive behavior.

Early work done by Pisano and Taylor (1971) examined aggression reduction with students who they identified as highly aggressive. They found that when a confederate was consistently punitive during a competitive interaction with subjects, subjects benaved similarly. When the confederate was consistently passive, subjects initially were also, but they gradually became more aggressive. The most effective strategy was one in which the confederate identically matched the subject's behavior. Pisano and Taylor (1971) suggested that the matching strategy may have been effective because the confederate made punishment contingent upon the behavior of the subject.

Pisano (1973) subsequently further investigated the effectiveness of the passive strategy, again with students identified as highly aggressive. The confederate delivered either a passive or a neutral message to the subjects before the competition trials began. During the competition trials, the confederate employed a consistently non-aggressive posture. Pisano found that the passive response strategy in combination with the passive

message was significantly more effective in reducing the intensity of subject aggressive behavior.

Dengerink and Bertilson (1974) have followed the Pisano and Taylor studies with one intended to examine two points. First, they wanted to apply passive and matching strategies to subjects who were not identified as being highly aggressive, but rather who had been instigated to behave aggressively. Secondly, they hoped to isolate the effective ingredient responsible for the success of the matching strategy in the earlier research. Their confederate instigated the subjects with maximally aggressive behavior during the early trials of a competition task and then adopted one of three response strategies on subsequent trials. Subjects received passive treatment, or levels of aggressive behavior which contingently matched their own, or confederate responses similar (yolked) to those given to a subject in the matching group, but not contingent on that particular subject's behavior.

Dengerink and Bertilson (1974) reported that all three confederate strategies significantly reduced the aggressive behavior of the subjects by the end of the trials. The yolked and matching groups were equally effective, suggesting that the level of response and not the contingency of response may be the critical factor in the matching strategy. The passive strategy produced the most rapid decline in instigated aggressive behavior and resulted in the lowest intensity aggression across all trials. Based on the data, Dengerink and Bertilson suggested that the matching strategy may have been less effective with instigated subjects because they failed to recognize the contingency of the confederate's response.

The present study attempted to throw some additional light on the effects of various behavioral strategies with instigated subjects. All subjects were instigated with shocks and then participated with a confederate in a reaction time competition task very similar to that used in the earlier studies. To examine the possibility that instigated subjects might fail to recognize the intentions of the confederate and therefore go unaffected by his strategy, subjects in all conditions received from the confederate either a message describing the strategy he intended to use or an irrelevant statement. Delivery of the strategy message was expected to make the intentions of the confederate explicit. The confederate adopted one of five response strategies during the competition interaction: 1) a passive strategy, 2) a punitive strategy, 3) a match-same strategy -- set shocks which contingently matched the subject's 4) match-low strategy -- set shocks contingently two levels below the subject's, or 5) match-high strategy -- set chocks contingently two levels above the subject's. The match-low and match-high strategies were included in this study to examine whether contingency or level of confederate response controlled subject responding.

It was predicted that subjects who received the irrelevant message would align themselves on the basis of the level of shock delivered to them by the confederate, as in the Dengerink and Bertilson study (1974). Strategy message subjects were expected to perform differently. It was predicted that the message would enhance the effects of all three contingent response strategies. If contingency of response were more important than

absolute shock level, then all three contingent groups would have been equally effective. The passive strategy was expected to be more effective also as a result of the presence of the strategy message, as Pisano (1974) found with aggressive subjects.

A control group was included in the present study to assess the effects of instigation without any confederate counterresponse present. Control subjects experienced the instigation shocks and then competed with, and delivered shocks to, the confederate, but received no message or shocks. Such a condition provided a point of comparison to insure that any of the strategies employed, even the effective ones, do anything better than the passage of time. No comparison of this type has been made previously.

Method

Subjects

Fifty-five male and fifty-five female undergraduates from general introductory courses volunteered to participate in the study. Five females and five males were randomly assigned to each of the eleven conditions. The experimenter was a male graduate student. Three male undergraduates served as confederates.

Apparatus

Subjects were presented with a response panel and reaction time task adapted from earlier studies (e.g., Pisano & Taylor, 1971). The panel sequentially presented the subject with a red light signalling him or her to set a trial consequence for the confederate, five buttons from which to select consequence, and a green light which signalled the beginning of each

trial. The buttons were labeled to represent shock intensities ranging from 5 (unpleasant but not painful) to 1 (mild). A set of amber lights numbered from one to five indicated the opponent's response on each trial. A counter recorded the number of points earned by the subject during the competition trials. Shocks administered to the subjects were generated by a Harvard Apparatus Induction Stimulator powered by a 3-Volt hobby battery.

Procedure

The experimenter informed the two participants that the study would examine the effects of stress, induced by shock, and competition on reaction time. The participants were then told that the experiment would be discontinued at any time one of them wished to stop. Lots were then drawn to determine who would be the "sender" and who would be "receiver" of the shocks during the stress induction period of the experiment. The subject was always assigned the role of the "receiver." At that point the confederate was instructed to go to another identical room.

The instigation procedure was based on one effectively used by Knott and Drost (1972). Subjects were told that they were to respond as fast as possible to the reaction time task while the other person chose to deliver anywhere from 0 to 15 maximum-level shocks at his discretion to induce stress. An electrode was attached to the subject's finger and the experimenter left the room ostensibly to explain the procedure to the second participant. During the fifteen trial instigation period, the confederate delivered 12 one-second, level 5 shocks.

Following instigation, the experimenter explained the second part of the experiment. Control subjects were told that now they would become the

"senders", choosing a shock setting for the opponent before each trial. The experimental subjects were told that the second part of the study was to measure the effects of competition on reaction time. They were informed that the loser of the trial was to receive the other person's preset shock.

Before beginning the competition trials the subject was asked to fill out a biographical questionnaire to be exchanged with the opponent. A comment section at the bottom of the form was included to allow the confederate to communicate a message indicating either the strategy he intended to employ against the subject or an irrelevant message about his difficulties in finding the experimental cubicles. These forms were exchanged prior to the competition trials.

Trials during the actual competition interaction consisted of four events: (a) a signal to set a shock setting for the confederate, (b) a ready signal, (c) the reaction trial, and (d) a feedback signal indicating the shock level set by the opponent, plus the shock itself on those trials the subject lost. Step four was not present in the control condition. Each participant lost three out of the six trials during each of four trial blocks.

At the close of the competition trials, a questionnaire was administered. All of the subjects were informed of the nature of the deception used in the study and the actual purpose of the procedure. They were then thanked for their participation.

Results

Only one subject chose to terminate the study prematurely. Her condition assignment was subsequently filled with another subject. All remaining subjects completed and procedure and, according to the questionnaire

inquiry, appeared adequately ignorant of the experimental manipulations.

The mean intensity of shocks for each participant was recorded for each trial block. Main effects and interactions were statistically evaluated using a factorial analysis of variance. The analysis revealed no differences as a function of sex, hence subject data were collapsed across that variable. Comparisons between all of the response strategy groups and the control group were made with Dunnett's test (Winer, 1971). A priori, between-group predictions were tested using a one-tailed t test. Post hoc analyses were performed using a Fisher least significant differences test.

Control subjects in this experiment received neither a message nor shocks during the competition trials. Their responses represent unmitigated behavior with no threat of future retaliation from the confederate. The trial means for this group reveal that there was no appreciable change in the level shocks which they delivered across the competition trials.

The means for each of the conditions is presented in Table 1. The overall strategy x message interaction was not significant. However, a priori comparison across the two message conditions revealed that those subjects who were told that the confederate intended to use the match-same strategy were significantly less aggressive than sujects in the same condition who received the irrelevant message, t (60) = 2.71, $p < .01$. Interestingly, the passive group subjects slightly increased their aggressive responding above the irrelevant message levels upon hearing the pacifist intentions of their opponent.

Within the irrelevant message condition (see Table 1), only the passive group produced mean levels of aggression significantly below those of the

control group, t (df=99, K=6) = 2.69, $p < .05$. Further, the passive group set significantly less intense shocks than all other strategy groups with the exception of the match-low group. Except for a minimal reversal of the match-same and match-high groups, the strategies were ranked as a direct function of the levels of shock they had received from the confederate.

The relative rankings of the strategy groups was consistent across all four trials blocks. Both the passive, t (240) = 6.77, $p < .0025$, and the match-low, t (240) - 6.92, $p < .0025$, groups lowered their shock settings significantly from Trial Block 1 to Trial Block 4.

The right side of Table 1 presents the means for the five strategy groups within the strategy message condition. When the strategy message was delivered, only the match-same strategy resulted in shock settings significantly below those administered by subjects in the control condition, 5 (df=99, k=6) = 2.49, $p < .05$. There was no significant differences among the three contingent strategies and the passive strategy. Both the match-same and the passive groups delivered shocks significantly below the levels administered by the punitive group. The match-high group significantly increased shock settings from Trial Block 1 to Trial Block 4, t (240) = 4.46, $p < .0025$.

Discussion

The current findings bear examination in light of the previous research. The alignment of the strategy groups in the irrelevant message condition, for the most part, parellels the findings of Dengerink and Bertilson (1974). Irrelevant message data seemingly offer support for their contention that the level of an individual's aggressive responding is a direct function of the

absolute level of hostility directed toward him/her. Subjects in the irrelevant message condition appeared to be unaffected by the contingency of the matching strategies and their behavior fell between the passive and punitive groups.

With the delivery of the strategy message, a different arrangement of the strategy groups appeared. Results in this condition emerged resembling the Pisano and Taylor (1971) findings. The match-same strategy (Pisano and Taylor's matching strategy) stood out as the deterring course of action. Combined with the strategy message, this tactic had the same impact on our instigated subjects as it had with Pisano and Taylor's uninstigated participants. Also, in line with their study, the passive strategy exerted less effect than the match-same policy.

Data from subjects in our passive, match-same, and punitive groups in the strategy message condition would tend to support Pisano and Taylor's contentions that the contingency of punishment in the match-same strategy had accounted for its success. However, these results must be examined in light of the data obtained in other groups in our study. Contingent behavior on the part of the confederate did not influence subject behavior noticeably in the irrelevant message condition, nor did the match-low and the match-high groups in the strategy message group perform as would be expected.

Both the passive strategy in the irrelevant message condition and the match-same strategy in the strategy message condition resulted in reductions in subject shock intensities significantly below the control group. We can conclude that both strategies inhibit instigated aggression under certain

conditions. However, rather than confirming one of the two theoretical formulations offered by past researchers, we have provided evidence suggesting that each formulation explains only a portion of the obtained data. Neither sufficiently accounts for subject behavior under both message conditions. What remains to be explained is how the two strategies operate, how they interact with the instigation procedure, and how, if at all, they can be integrated.

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Table 1

Means and Standard Deviations for Intensity as of Function of Message and Strategy (Range 1 to 5)

	Message			
	Irrelevant		Relevant	
Group	Mean	SD	Mean	SD
Passive Strategy	1.88	1.19	2.32	1.19
Punitive Strategy	3.76	1.16	3.32	1.32
Match-Low Strategy	2.18	1.08	2.36	1.11
Match-High Strategy	3.09	1.22	2.78	1.59
Match-Same Strategy	3.39	1.07	1.98	0.87

	No Message	
	Mean	SD
Control	3.20	0.99